THE INFLUENCE OF ADMINISTRATIVE FEATURES AND USERS' ATTRIBUTES ON THE SUCCESS OF TECHNOLOGICAL ASPECTS FOR E-GOVERNMENT IMPLEMENTATION IN TANZANIA: USERS' PERSPECTIVES

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Abstract

Electronic government (e-government) has been a policy issue for several nations since 1990s. Although e-government is vital due to its importance inenhancing efficiency in public sector services, itsimplementation has manychallenges. This study, therefore, aimed at examining the administrative features and users' attributes as far as technological aspects are concerned, for e-government implementation. Data wascollected by using structured questionnaires served to Customs Staff and Tax Practitioners in DaresSalaam Region. This data included technological aspects (e.g.ICT infrastructure and support); user's attributes (e.g. education levels); and administrative aspects in ICT regulations. Itwasanalysed quantitatively using descriptive statistics,factor analysis and finally, thestudy hypotheses were tested using structural equation modelling. The results show that the developed model was supportive as users' attributes and administrative aspects were bothpositively related to success of technological aspects relevant for e-government implementation. Consequently, governments need to give attention to administrative issues of ICT policies, regulations,as well as people-related matters such as ICT knowledge for the success of technologicalaspectsuseful in e-government operations. However, the research addressed concerns withinTanzania's context, one of the developing countries; and such findings might not be generalised. It would be very informative if the study was replicated in other developing countries, to determine the pattern of influence of administrative characteristics and users' attributes on e-government.

Key words: e-government, administrative aspects, users' attributes, technological aspects.

INTRODUCTION

Governments around the world administer e-government projects to improve public services;however, the success of implementing such e-government projects has not been straight forward. E-government implementation encounters many challenges(Mkude & Wimmer, 2015), sothere are various factors that need to be considered for successful implementation of these e-government projects (Al-Shboul *et al*., 2014). South Korea, US, Canada and UK are some ofthe countries that have succeeded in the implementation of e-government (Al-Wazir & Zheng, 2014). Other countries, mostly in developing countries like Tanzania, are lagging behind in implementing e-government (Bwalya & Mutula, 2015).

According to the World Bank (2015), e-government is the use by government agencies of Information and Communication Technologies (ICT) like the internet and mobile services to transform relationships with citizens, business, and other government organs for the purpose of improving delivery of services. E-government has transformed traditional functioning of public organisations and added innovative dimensions on government activities to enhance efficiency (Imran & Gregor, 2010). Effectiveness and quality of government services may beboosted through e-government and thus administrative burdens get reduced(Mkude & Wimmer, 2015). Moreover, e-government has a potential to provide competitive advantage to the nation and citizens because it builds capabilities that are hard to reproduce.

The success of e-government can be explained by the success of technological aspects (Alrashed, Persaud, &

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Kindra, 2015).For example, Al-Rabbi *et al.* (2012) applied technological aspects to evaluate the success of e-government implementation in Oman.Technological aspectsconsider both internal and external technologies relevant to the organisation, including the standard of Information Technology (IT), trust and security of data, technical expertise, compatibility as well as ICT infrastructure (Bwalya & Mutula, 2015; Wu, 2014; Al-Shboul *et al.*, 2014; Bwalya *et al.*, 2014). Makau *et al.* (2015) in Kenya revealed that system integration, usage and process,together with the standard of technology explain sufficientlythe technological aspects relevant for the success of e-government.

Factors that need to be considered for the successful implementation of e-government have been studied (Bwalya *et al.*, 2014; Al-Naimat *et al.*, 2013; Wirtz *et al.*, 2014). Mofikoe (2015) and Al-Naimat *et al.* (2013) in their studiesargue that peoples'concerns in accepting information systems and users' attributes (such as age, gender, experience and knowledge) seem to be important but not sufficient for e-government implementation. Oseni, Dingley and Hart (2015) emphasise the relevance of both administration (through leaders who institute laws, strategies and provide e-government support); and users (people) who applye-government systems.

E-GOVERNMENT IMPLEMENTATION IN TANZANIA

Like other decisions by the government to investment in electronic services, Tanzania recognised the benefits that would accrue from e-government and therefore established e-government, basingthis on the National ICT Policy (2003) which was revised through the National ICT Policy, 2016(Ministry of Works, Transport and Communication, 2016).In 2009, the national e-government strategy was developed with the aim of increasing trust, confidence as well as willingness to invest and adopt e-government. The government established further an e-government agencyto promote, coordinate and oversee e-government initiatives. The 2013 - 2018 e-government strategy was formulated concurrently with the agency after having carried out a survey and situational analysis of e-government activities. Through these initiatives, Tanzania has made some notable e-government achievements including putting in place thecitizens' national identity (ID) system; establishinggovernment and recruitment portals; and strengthening revenue collection systems(United Republic of Tanzania, 2014).

Despite the achievements made on Tanzania e-government services, many hindrances have been encountered in its implementation. Most citizens are not able to access broadband services as indicated in the ICT Policy of 2016; also, there is lack of an ICT standardisation policy and a data centre framework of the nation (Ministry of Works, Transport and Communication, 2016). The exercise is facingpoor harmonisation of initiatives, unnecessary duplication of efforts and improper utilisation of the scarce resources available (United Republic of Tanzania, 2014). Yonazi (2013) shows how adoption of electronic services is an obstacle to e-government implementation. Following such problems, anin-depth evaluation was needed to provide informed suggestions to practitioners, academicians and policy makers to ensure that appropriate technology is being developed and used continuously to avoid duplication of efforts by different actors.

Conversely, it is argued that factors for successful e-government implementation are specific to a given nation in accordance with the attained development level, socially andeconomically (United Nations, 2014). Besides, studies (such as United Republic of Tanzania, 2014; Yonazi, 2013) on e-government implementationshow that Tanzania is facingsome limitations yet to be addressed.Hence, this study sought to addressthe established gap and evaluate the success factors (administrativeaspects and users' attributes) for sucessful implementation of e-government. The study assessed established factorsto accommodate the country specific requirements;consequently,Tanzania's e-government.As depicted earlier, the results of this study are essential to various stakeholders who would need to makeinformed suggestions on the examined factors relevant for e-government.

The rest of the articlecontains the literature review, where theories used by the study, and empirical and conceptual framework are discussed; followed by the research methodologyadopted showing how the study was conducted; and thirdly the study findings are delineated. The final section of the article presentsdiscussions as well as the conclusion.

LITERATURE REVIEW

Theoretical framework

Various theories have beenapplied in orderto understand technological aspects in e-government such as the Technological, Organisational and Environmental (TOE) framework; as well as the Unified Theory of Acceptance and Use of Technology (UTAUT).

UTAUT is one of the theories applied in the current study to comprehend different concepts in e-government. In order to understand UTAUT properly, some exploration on the Technology Acceptance Model (TAM) has been presented.TAM is one of the widely used models that explains individual's acceptance of information systems likee-government. The model, developed by Davis (1989), is an adaptation of the Theory of Reasoned Action established by Fishbein and Ajzen (1975)on individual attitude measures. Two technology acceptance measures by individuals (perceived usefulness and perceived ease of use) are postulated by the model. Perceived usefulness is the degree to which a person believes that using a system would improve his or her job performance while perceived ease of use is the degree to which a person believes that using a developed system would be free of effort (Davis, 1989). The two measures seem to succeed if other users' attributes in terms of ICT knowledge, education and experience are considered.TAM has been studied, upgraded and proven to be useful in explaining matters related to IT. One of the improvements is the development of UTAUT. UTAUT is based on the eight examined competing models of technology acceptance, which are: Theory of Reasoned Action (TRA); Technology Acceptance Model (TAM); Motivation Model; Theory of Planned Behaviour (TPB); TAM/TPB combined; Personal Computer (PC) Utilisation Model; Innovation Diffusion Theory; and Social Cognitive Theory (Venkatesh *et al*., 2003).UTAUT advocates for four variablesthat determine usage intention and behaviour; these include performance expectancy (the extent to which an individual believes that the use of technologies will be helpful in achieving better results); effort expectancy (the ease of use of developed technologies); social influence (the extent to which an individual perceives that important others believe that oneshould use the technologies); and facilitating conditions (the extent to which users recognise that organisational and technical infrastructure supporting technologies exist). UTAUT provides further that there are four attributes of age, gender experience and voluntariness on technology use thatmoderate the identified relationships.

UTAUT has been extended and widely tested by various authors (Alghamdi & Beloff, 2014; Venkatesh, Thong, & Xu, 2012; AlAwadhi & Morris, 2008).Venkatesh, Thong and Xu (2012) proposed an extended theory, that is,UTAUT$_2$ as used in consumer behaviour matters. UTAUT$_2$ suggests inclusion ofmotivation, experience, price value and habits on the four constructs found in UTAUT.However, researchers use UTAUT in their studies by employing few constructsand yet reducing moderators or ignoring them completely (Lopez, 2013).In addition, UTAUT has been criticized (Alghamdi & Beloff, 2014), since it lacks relevant elements such as demographic factors (education levels and income) which might be important for e-government implementation. This study also saw the need for modification as theories are applied depending on the research setting and therefore few items (including facilitating conditions and users' characteristics) were incorporated. Moreover, successfule-government implementation was viewed from initial stages of using technology basedonindividuals' knowledge and experience that can predict application of government electronic projects (Al-Shafi & Weerakkody, 2010).

Building on UTAUT and modificationrequirements to suite the research setting, the study used further TOE Framework variables. TOE framework was developed by Tornatzky and Fleischer in 1990. Various items on technological, organisational and environmental concerns have been proposed in the framework. Technological matters involve existing technologies as well as new technologies available for organisations in terms of both equipment and processes. The organisational context considers organisational characteristics and resources; that is, coordination of activities, compatibility issues and top management support in IT. The last item is environmental concerns; thesedeal with environmental characteristics in which an organisation conducts business. Environmental characteristics include the degree of competition, regulations as well as technology support infrastructure. Organisations can take advantage of new technologies regarding e-government that influence the adoption process, implementation and use of the established technologies (Tornatzky & Fleisher, 1990). A framework has been used in different settings of e-government operations like e-procurement and e-business (Teo, Lin, & Lai, 2009; Zhu, Kraemer, Xu, & Dedrick, 2004). TOE framework has been widely tested; some studies combine it with other models (such as Ononiwu, 2013), while others - accordingly appraise the TOE elements to understand IT operations (Durbhakula & Kim, 2011; Alawneh & Hattab, 2009; Angeles, 2014; Pudjianto, Zo, Ciganek, & Rho, 2011).

The reviewed theories (UTAUT and TOE framework) provide useful guide in understanding the success of technological aspects for e-government implementation. Facilitating conditions and environmental matters (as explained in administrative aspects and support in e-government operations) are crucial fortechnological aspects in e-government activities. Besides, users' characteristics (such as knowledge and experience) map key issues for users to apply IT in e-government projects.

Empirical works

There is rich empirical work on e-government implementation (Müller & Skau, 2015; Bwa14; Mkude & Wimmer, 2015); yet, implementation of e-government projects is challenging (Ramadhan *et al*., 2013).Studies have proved that people related factors, administration of IT and funding play an important role in influencing successful implementation of e-government(Sarrayrih & Sriram, 2015; AlS141). Since e-government implementation in Tanzaniaalso faces implementation challenges,insight on ICT administration and users' characteristics on usage have been addressed in this article.

Users' attributes

Users' attributes such as experience and competence seem to determine successful e-government implementation (Hussain & Imran, 2016; AL-Naimat, Abdullah, & Ahmad, 2013; Mofikoe, 2015). Alomari (2014) attempted to examine factors that influence effective e-government functioning in Jordan. Data was collected from 356 Jordanian citizens through a survey method. The results indicate that factors that lead to successful e-government include skills in using the Internet and computers as well as ease of use of electronic services. The study stresses the importance ofgivingattention to users for the success of technology in e-government projects. Conversely, Alzahrani*et al*. (2016) studied citizen trust of e-government services. Using SEM (partial least square - PLS method), the developed hypotheses were tested. Findings indicate a positive relationship on both technological factors and users' characteristics. The research stresses that the level of citizens' trust can be enhanced if they are informed on e-government procedures.Users' education can help facilitate ICT in government institutions (Ahmad, Markkula, & Oivo, 2013). Moreover, it is asserted that individuals with goodeducation can attain better job positions and are more likely to use new ways that could provide e-government support (Ifinedo & Singh, 2011).However, it is debated that some governments may have IT staff yet most of their training may not prepare them to programme the required online applications (Ebrahim & Iran, 2005). Ilias *et al*. (2009) in their study in Malaysiashow that education background and experience have an important role in e-government. Other authors such as Chopra and Rajan (2016) used age, education and experience as moderating variables. Al-Shafi and Weerakkody (2010) also point out that adopters of e-government differ significantly in terms of all traits of gender, age and education levels.

As already shown, different authors argue differently regarding users'attributes; thus, it was crucial to examine further their attributes of experience and knowledge (relevant to government agencies)to identify existing relationship of such variables with e-government implementation in Tanzania.Consequently, this study postulated the following hypothesis.

H_1: Users' attributes have a positive influence on e-government implementation.

Administrative aspects

Proper administration is considered important for the success of the technological aspect for e-government implementation (Al-Rahbi, Al-Harrasi, & Al-Wahaibi, 2012; Mofikoe, 2015; Wirtz, Mory, Piehler, & Daiser, 2014).The success of technological matters as referred to in this study implies proper ICT infrastructure, security of data, support services and the appropriate technology. Effective administration of funds in e-government projects is vital for the proper functioning of technological matters. Oseni, Dingley and Hart (2015) sought to identify barriers facing e-government in developing countries with the view to finding solutions to such barriers. Using Nigeria as a case study, the research applied content analysis on 3,100 papers viewed between 2009 and 2014. Results show that adequate funds and management are among the relevant factors in determining the success of technological aspects for e-government. Thus, governments need to provide sufficient funds for projects dealing with electronic services, ensure stable power supply, and restructure the management and provision of the centres for ICT (support).

Moreover, Rahman *et al.* (2014) aimed at investigating the critical factors of e-government implementation in Bangladesh. The study used a multi-criteria decision-making technique, an analytic hierarchy process (AHP) basing on data gathered through structured questionnaire to 18 senior executives including policy makers, public officials and planners who were interviewed on the subject matter. The results indicate that organisational and access-related factors are some ofthe important factors that determine technological success in implementing e-government activities. Furthermore, it was argued that nations with low organisational commitment should consider regulatory and legal related factors for e-government success;for example, ensuring that users trust the electronic services and that data is secure.However, the mere existence of regulatory frameworks is not

sufficient to prove that there is proper administration of e-government.

Lupilya and Jung (2015) suggest that investment should be made in appropriate plans as well as allowing a sound ICT environment; otherwise e-government projects may remain stagnant or may not yield the desired outcomes. Existence of ICT policies, laws and suitable procedures shows commitment in management of e-government activities. Berger (2015) views policies in a broad perspective covering data protection, storage of information for a long period (archiving), support and other information system regulatory frameworks. Wu (2014), Bwalya, Plessis and Rensleigh (2014) stress thatsecurity of datashould be taken as an important e-government policy issue. However, it is also suggested that dueconsiderationshould be given to citizens and employees who apply the electronic services (Müller & Skau, 2015). It was therefore relevant to investigate theadministrative aspects that couldinfluence the success of e-government implementation (technological aspects point of view); thus, the study hypothesized that:

H_2: Administrative aspects have a positiveinfluence on e-government implementation.

METHODOLOGY

This study employed a deductive approach to construe the critical factors for e-government success. The population includedusers of electronic services in the public sector. A survey was conductedin the Customs and Excise Department. Tax practitioners from three districts (Kinondoni, Temeke and Ilala) of Dar es Salaam Region were the units of analysis. The particular department and the region were selected because these areas have remarkable record in ICT initiative (United Republic of Tanzania, 2014).Data wascollected by use of a structured questionnaire. Prior to fieldwork, the questionnaire was reviewed by e-governmentexperts for their validity. Considering the proportion of the number of workers per segment, the sample included 15 tax consultants, 15 customs clearing agents and 270 staff from the Customs and Excise Department. The return rate of the questionnaires that had been sent was 246 questionnaires out of 300,from the mentioned segments; all these were used in the analysis.The responses were sufficient for the purposes ofa structural equation modelling tool which requires a minimum sample size of 200 in order to reduce biases to an acceptable level(Boomsma & Hoogland, 2001).

All data wascoded to minimise errors (Saunders, Lewis, & Thornhill, 2012). This was followed by manual editing to ensure completeness, and then it was processed through two software types: Statistical Package for Social Sciences (SPSS), as well as Analysis of Moment's Structures(AMOS)Version 20. Before further analysis was done, data wassubjected to a reliability measure to ensure consistency of the results. Descriptive analysis wasemployed to describe patterns of e-government factors in Tanzania, preceded by factor analysis (principal component analysis) to establish acceptable factor scores and to obtain a simple structure in which observed variables could load into common latent variables(Field, 2009). Moreover, factor analysis establishes observed variables that are highly correlated and which could be grouped into few factors that could be easily interpreted (Yong & Pearce, 2013). Confirmatory factor analysis was then run to assessmeasurement model fit. Finally, the hypotheses were tested using structural equation modelling (SEM). SEM is a statistical technique used to test and estimate causal relationships among observed and unobserved (latent) variables. Analysis by use of SEM was suitable to this study because of the presence of several observed variables per construct which could be run simultaneously (Bryrne, 2010).

Operationalisation of concepts

From the conceptual framework, the explanatory variables are administrative aspects and users' attributes. Administrative aspects were measured in terms of allocation of funds, leaders' political will, proper ICT laws, policies and procedures. Users' attributes includedage, education levels, experience and ICT knowledge. The successful e-government, a dependent variable, was explained by the success of technological aspects. Such success was measured by the availability of appropriate technology, ICT infrastructure, data security and support services.

Study Findings

Sample characteristics

Table 1 provides a summary of respondents' characteristics in terms of age, sex, education and field of study. Data obtained wasuseful for generalisation purposes since responses from different categories in the established characteristics couldholdvarying perceptions. In terms of response rate, the study used 246(82%) questionnaires

which had been returned, out of 300 which had beendistributed. Results fromthe descriptive analysis indicate that more than half of the respondents were male. Nearly half were aged below 35 years.The results on respondents' age resembled those of Albesher (2015) who had studied about e-government in Saudi Arabia.Data on field of study were normally distributed. Two thirds of the respondents had a finance and tax operations background (pre-requisites in tax operations, core activities in a surveyed area). In relation to education levels, about four fifthsof the respondents had attaineda first degree and post graduate studies. Very few (2.8%) respondents had secondary education. It is opinedthat younger and educated users use electronic services more than others and hence, may have influence in the success of technological aspects, needed for e-government implementation (Seifert & Petersen, 2002).In general, the sample successfully portrayed characteristics of respondents in every category.These results therefore helped to provide immediate depiction on how data was distributed (Field, 2009).

Table 1: Respondents' characteristics

Characteristic	Percent
Sex	
Male	58.9
Female	41.1
Age	
20-35years	45.1
36-45 years	24.0
46-50 years	11.8
Above 50 years	19.1
Field of study	
Human resources	10.6
Finance and accounting	32.1
Tax operations	37.8
Others (such as law and ICT)	13.7
Supplies	5.7
Education Level	
Secondary (ordinary and advanced)	2.8
Diploma	11.4
First degree	42.3
Post Graduate	43.5

Source: Research data (2016)

Respondents' responses on e-government constructs

Findings on the respondents' perceptions on the success of technological aspects administrative and users' aspects are presented in Table 2. The results indicate that "agree and disagree" were rated highly as far as enquired e-government items were concerned. In general, findings suggest that respondents consider the relevance of appropriate administrative aspects, users'attributesand other measures of technological aspects in e-government projects. These results might be due to the mandatory systems exercised in Tanzania public institutions,requiringusers to apply them. The perceptions byrespondents maysuggest further that users are aware ofdifferent applications and requirements of e-government operations. However, descriptive results do not portray causal effects(Khine, 2013); thus, these findings were subjected to further analysis (including hypotheses testing) in order to achieve the study objectives. Descriptive results intended to describe what was found in the field, and one could use these for other purposes like awareness as well as making prompt interpretation(Field, 2009).

Table 2: Respondents' overall perception on e-government constructs

Code	Item	Strongly agree	Agree	Neither	Disagree	Strongly disagree
Tec	**Technological aspects' success**					
Tec 1	Review of procedure manuals	15.9%	55.7%	17.9%	9.3%	1.2%
Tec 2	Appropriate technologies identified	11.8%	66.3%	11.4%	9.3%	1.2%
Tec 3	Systems protection	26.0%	57.3%	8.5%	6.9%	1.2%

Tec 4	Support of ICT infrastructure	22.0%	57.3%	7.7%	8.9%	4.1%
Tec 5	Support from specialists	25.2%	62.6%	8.5%	2.8%	0.8%
Adm	**Administrative aspects**					
Adm 1	Allocation of funds	16.7%	45.9%	18.3%	16.7%	2.4%
Adm 2	Budgets set	12.2%	56.1%	17.1%	13.4%	1.2%
Adm 3	Laws governing ICT	17.9%	66.7%	9.8%	5.3%	0.4%
Adm 4	Policies managing ICT	20.3%	64.2%	9.3%	5.3%	0.8%
Adm 5	Processes fit instituted technology	8.5%	62.6%	19.1%	6.9%	2.8%
Adm 6	Political will by government leaders	18.3%	54.5%	17.9%	7.7%	1.6%
Atr	**Users' attribute**					
Atr 1	Users' higher education level	65.4%	30.9%	1.6%	2.0%	0.0%
Atr 2	Experience on e-government	44.3%	49.2%	4.9%	1.2%	0.4%
Atr 3	Users' ICT knowledge	48.0%	48.8%	3.3%	0.0%	0.0%
Atr 4	Young employees are able to learn easily	59.8%	35.4%	2.8%	2.0%	0.0%
Tec = technological aspect success; adm = administrative aspect; atr = users' attribute						

Source: Research Data (2016)

Factor Analysis

Observed variables were run for factor analysis (see Table 3), to determine factor scores and confirm factors falling in common latent variables (Yong & Pearce, 2013). Using principal component factor analysis the number of questionnaire items could also be reduced to meaningful, interpretable, and manageable set of factors. A total of 12 items in three proposed constructs were retained. All factor loadings for the retained itemsexceeded 0.4 which isabove therecommended minimum threshold of 0.32 that could be used for interpretative purposes (Tabachnick & Fidell, 2014; Yong & Pearce, 2013). Thus,a convergent validity measure was attained. As suggested by Tabachnick and Fidell (2014), the following measures were acceptable: the sample was adequate, Kaiser-Meyer-Olkin – KMO measure of sampling adequacy exceededthe recommended value of 0.5, while Bartlett's Test of Sphericity probability value (P) was below the maximum suggested value of 0.5. Moreover, the results show an acceptable total variance explained for the extracted factors. The value of the total variance explainedfor the retained factors is suggested to be above 50%**.**

Table 3: Factor loadings, variance and Cronbach Alpha for the items

Description of the Item	Technological aspects	Users' attributes	Administrative aspects
Appropriate technology	.752		
Review to comply with ICTs' changes	.729		
Systems protected	.655		
ICTs infrastructure support	.614		
Support from ICT specialists	.588		
ICT knowledge		.759	
Education levels		.757	
Experience		.683	
Age		.644	
ICTs laws			.783
ICTs policies			.777
ICTs processes			.685
Percentage variance	26.933	13.990	10.021
Cronbach alpha	.732	.701	.765

KMO measure of sampling adequacy = 0.753
Bartlett's Test of Sphericity – Probability (P = 0.000)

Reliability of data

Reliability measures how consistent the instrument is, in providing same results if subjected to adifferent time for the same subject. To measure reliability, the study used Cronbach's alpha measure of 0.7 and above. Besides, Cronbach's alpha measure provides a sound under-estimate (conservative or safe estimate) of the reliability of a set of test results (Saundrers *et al.*, 2012).When the Cronbach's value shows high reliability, it

implies that constructs are consistent internally, hence, measuring the same content on the construct. As shown in Table 3 above, all constructs had a Cronbach's alpha value above 0.70, and therefore they werehighly reliable. The results permitted further analysis so as to confirm the model fit.

Confirmatory factor analysis

Confirmatory factor analysis (CFA) was performed to check the measurement model fit.To attain acceptable fit indices, two items were omitted, one from technological aspects (review to comply with ICTs' changes) and the other from users' attributes (age significance). Depending on the underlying theory and relevance of the factor, items with low factor loadings are removed until the fit indices are achieved (Awang, 2012). After the removal of two items, the results of CFA show that chi-square per degree of freedom CMIN/DF = 1.847 (cut-off value less than 3); Comparative fit index – CFI = 0.954 (cut-off value greater than 0.90); Root mean square error of approximation – RMSEA = 0.059 (cut-off value less than 0.08) and adjusted goodness of fit index – AGFA = 0.923cut-off value of greater than 0.90 (Awang, 2012; Hair, Black, Babin, & Anderson, 2010). All fit indices were on acceptable levels, to allowSEM.

Hypotheses testing

Study hypotheses were tested using SEM;Figure 1 shows a structural model of the study.Measures on users' attributes and administrative aspects were subjected to the analysis to find outtheir relationships with the dependent variable measuring e-government success (technological aspects). Results on the tested model showed acceptable fit indices as follows: CMIN/DF = 1.847; CFI = 0.954; RMSEA = 0.059and AGFA = 0.923.
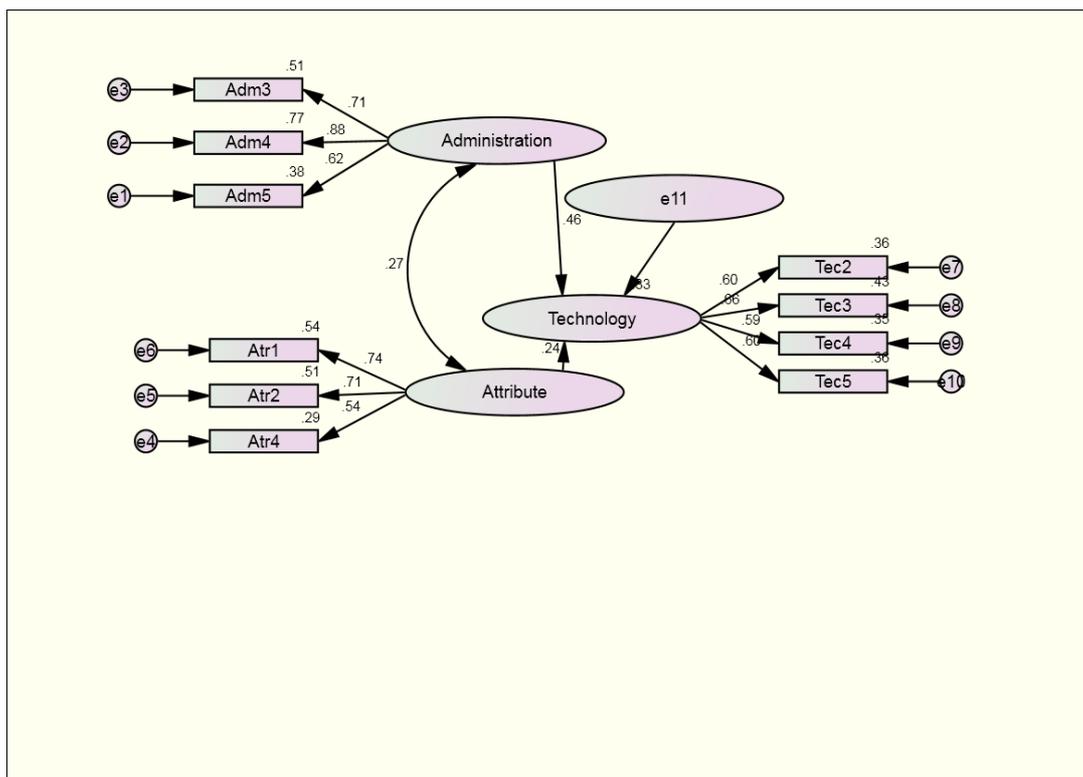
Figure 1: Structural model of the study
Atr = Users' attribute; Adm = administrative aspect;Tec = technological aspect
Source: Research model from data analysis (2016)

Results for hypotheses testing

Findings from SPSS -AMOS 20 output arepresented in Table 4. Resultsindicatethat both hypotheses were supported; probability values, P were less than 0.05; and critical ratios, CR were greater than 1.96 as recommended by Awang (2012).

Table 4: Results for the hypotheses testing

				CR	P
Technology	<--	Administration	H$_1$: There is positive relationship between users' attributes and success of technological aspects for e-government	4.598	***
Technology	<--	Attribute	H$_2$: There is positive relationship between administrative aspects and success of technological aspects for e-government implementation	2.596	.009

CR = critical ratio; and p = probability value; *** = p less than 0.01

DISCUSSION AND CONCLUSION

The study investigated the influence of administrative aspects and users attributes on e-government implementation (technological aspects point of view). The results indicated that users' attributes and administrative aspects had apositiveimpact on success of technological aspects fore-government implementation. These results conform to previous studies (Alzahrani, Al-Karaghouli, & Weerakkody, 2016; Oseni, Dingley, & Hart, 2015; Rahman, Rashid, Yadlapalli, & Yiqun, 2014; Ahmad, Markkula, & Oivo, 2013; Berger, 2015).Thus, users' attributes (education, ICT skills and experience) and administrative aspects (ICT laws, policies and procedures) are suggested to beimportant in government electronic services.

The study has a theoretical contribution as it adds knowledge to previous researches like those carried out by Venkatesh *et al*. (2012) as well asTornatzky and Fleisher (1990). UTAUT and TOE framework have been supported since the variables - administrative aspects (such as facilitating conditions and ICT environmental characteristics derived from reviewed theories); and users attributes (such as experience) - have shown positive relationship with success of technological aspects (e-government implementation success). Hence, the measures have been confirmed in broader perspectives especially for users of electronic services in public organisations. Some studies (like a study by Chopra and Rajan, 2016) apply users' attributes on UTAUT as moderating variables and show that the proposed variables have moderating effects. This study included users' education levels and ICT knowledge for direct assessment (a new endeavour) with e-government implementation, making further modification to suit public sectors' electronic services in Tanzania.Consequently, compared to previous studies, this research was intensive and the relationship was found to be positive and significant.Furthermore, the scale items of this study are valid and reliable suggesting that they can be replicatedin other similar researches. However it is important to mention here that this was a case study, and the findings were not meant to be representative of similar cases.

The results of this study have practical implications. The fact that administrative aspects and users attributes showed a positive impact in the success of technological aspects for e-government, practitioners in public sectors need to ensure that proper policies, laws and procedures are adheredto ine-government projects. For instance, laws on security of data should be observed otherwise strictsanctions should be imposed. Moreover, the study suggests that public sectorsshouldput in placestaff with relevant education who can effectively handle ICT technological issues (such as ICT infrastructure, technical support and data security). Users need to possess ICT skills and experience which also calls for awareness and capacity building. Furthermore, policy makers should put necessary emphasis on the ICT policies by undertakingregular reviews, example, on the current ICT Policy, 2016 and the 2013-2018 strategy. Besides, academicians and researchers can use these informed suggestions on e-government implementation.

Despite the contribution made by this study, it has its limitations. Several items were removed in the due course of performing factor analysis and CFA. Furtherresearchers might need tomake extra efforts in finding additionalindicator variables (observed items) relevant in e-government implementation that couldbe included for assessment. Methodologically, the sample size was just slightly above the recommended threshold; others couldaddress such limitation to enable application of various options available in a SEM tool and extend the findings of the study under review. Besides, the research addressed concerns in theTanzanian context, one of the developing countries; as alluded to earlier, the results cannot be generalised, so one has to be cautiouswhen making interpretations. In this regard, it is suggested that the identified factors should be assessed in other countries of similar development levels.

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